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bine the two functions above outlined, by the strict elimination of such censuses as emanate from the obviously untrained observer, or at least of the names of those species of doubtful occurrence in the localities concerned from such lists as are published? True, this would require a high grade of editing; but if the first function above indicated is to be served at all, such expert editorial service must be performed unflinchingly.

Shall *Bird-Lore's* censuses be accepted in the future as contributions to ornithology?

As already announced in these columns, the California Fish and Game Commission about two years ago established a Bureau of Education under the directorship of Mr. Harold C. Bryant who had been previously connected with the California Museum of Vertebrate Zoology. This departure from the purely police function of the Commission was undertaken in the belief that an enlightened public sentiment might go far toward securing popular recognition of the need for game protection and thus eventually do away with the necessity for maintaining a large force of wardens. There seems to be no doubt whatsoever today but that the plan is going to succeed, and Mr. Bryant is to be highly commended for his earnest efforts in developing the idea.

One of the instruments for reaching the people of the state has been the periodical called *California Fish and Game*. Volume I of this journal has lately been completed. There were five numbers in this volume, the first issued in October, 1914, and there were 261 pages and 58 illustrations. The departments regularly appearing were: General articles; editorials; hatchery and fishery notes; conservation in other states; life history notes; wild life in relation to agriculture.

The general articles of particular note pertained to the following subjects: Recent game legislation; crude oil, a trap for birds; bird life as a community asset; the Wood Duck in California; books and pamphlets relating to California birds; the California Valley Quail; and early nesting of ducks.

As may be inferred from the above list of subjects there is much of real scientific value included in the columns of *California Fish and Game*. The editor has, and properly so, taken pains to select only authentic contributions for publication. The danger with any periodical in a popular field is that it will become the vehicle for more or less imaginative, or hearsay tales. Very little criticism can be offered on this score and it is to be hoped that even more rigid censorship will be exercised in future volumes.

The following are some of the sentiments we find expressed editorially on different pages, and with which we most heartily

concur. "The effectiveness of game protection is governed by the interest of the people and the spirit of those who hunt and fish." "Proper knowledge on the subject of game preservation is not yet possessed by the people as a whole in any western state." "The recognition of scientific truths combined with a practical knowledge of the working of correct laws are essential things in game administration."

INFORMATION WANTED FOR THE "LIFE HISTORIES OF NORTH AMERICAN BIRDS"

COURTSHIP: Of Mexican Grebe; any of the Loons (except Red-throated); any of the Alcidae; any of the Longipennes (except Kittiwake, Herring, Ring-billed, Heermann or Ross gulls; Gull-billed, Royal and Sooty terns; Noddy, and Black Skimmer); any of the Fulmars, Shearwaters and Petrels; any of the Steganopodes (except Gannet, Anhinga, Cormorant, and Double-crested Cormorant); Florida and Mottled ducks; and Gadwall.

NESTING HABITS: Of Whiskered Auklet; Marbled Murrelet; Kumlien and Nelson gulls; Slender-billed Fulmar; Greater, New Zealand and Pink-footed shearwaters; and White-bellied Petrel.

FEEDING HABITS: Of Mexican Grebe; Pacific Loon; Craveri Murrelet; Red-legged Kittiwake; Kumlien, Nelson, Slaty-backed and Vega gulls; Elegant, Aleutian and Bridled terns; Yellow-nosed Albatross; Pink-footed, Audubon, Townsend and New Zealand shearwaters; Black, Scaled, Least, Kaeding, Guadaloupe and Hawaiian petrels; Cinnamon Teal; and Florida and Mottled ducks.

VOCAL POWERS: Of Rhinoceros Auklet; Whiskered Auklet; Kittlitz Murrelet; Mandt Guillemot; Red-legged Kittiwake; Kumlien, Nelson, Slaty-backed, and Vega gulls; Elegant and Bridled terns; Pacific and Slender-billed fulmars; Cory, Pink-footed and New Zealand shearwaters; Black-capped, Scaled, Guadaloupe and Socorro petrels; Red-faced Cormorant; Florida and Mottled ducks; and Cinnamon Teal.

WINTER HABITS: Of Kittlitz Murrelet; Long-tailed Jaeger; Red-legged Kittiwake; Nelson, Slaty-backed, Vega and Franklin gulls; Elegant, Aleutian and Bridled terns; and Noddy.—A. C. BENT, *Taunton, Massachusetts*.

PUBLICATIONS REVIEWED

NATURAL HISTORY OF HAWAII, Being an Account of the Hawaiian People, the Geology and Geography of the Islands, and the Native and Introduced Plants and Animals of the Group. By WILLIAM ALANSON BRYAN, B. Sc., Professor of Zoölogy and Geology in

the College of Hawaii, etc. Honolulu, Hawaii. The Hawaiian Gazette Co., Ltd. 1915. 596 pp., 117 plates. (\$5.50 net.)

A "natural history" of Hawaii has long been a desideratum. Every year the numbers increase of those who seek our Pacific play-ground for health and recreation. Prof. Bryan has prepared an extensive handbook, interestingly written and admirably illustrated, covering a really wide range of subjects. The preface states that it has been the aim of the author to bring together into one volume the more important and interesting facts about the Hawaiian Islands and their primitive inhabitants, as well as information concerning the native and introduced plants and animals of the group. "To supply a guide that would provide reliable and readable information, in a form that would be welcomed by the general reading public, and, at the same time, that would meet the requirements of the homes, the schools, and the libraries of Hawaii and the mainland, as a convenient reference book, has been the author's endeavor."

"The casual reader will find the body of the text shorn of the technical verbiage and scientific names that so often distract, annoy and fatigue the layman. Where such terms have been indispensable they have been defined in the text, the footnotes, or in the index and glossary. Those who prefer their reading should rest on the firmer ground that definite nomenclature is supposed to impart, will find the necessary technical names of orders, families, genera and species, referred to in the text given in the footnotes, or in the cross-references in the index."

The book comprises an account of the native Hawaiian people; the geology, geography, and topography of the islands; the flora of the group; agriculture and horticulture; and a treatise on the animal life, occupying some seventeen chapters out of a total of thirty-seven. Chapters 22 to 25 are devoted to ornithology, the subject having been treated under the following subheads: Introduced Birds; Birds of the Sea; Birds of the Marsh, Stream and Shore; Birds of the Mountain Forests.

Unquestionably the most interesting birds of the main islands are those belonging to the Drepanididae which includes the majority of song birds of Hawaii, and "is perhaps the most remarkable example of the evolution of a group of birds to be found anywhere. While they are much alike in their general structure, they differ amazingly in the form of the bill and also exhibit striking differences in the color of the plumage.

In almost all other families the form of the bill is quite uniform among the species that belong to it. But among the Drepanididae of Hawaii we find them fitted by their structure to almost every kind of life for which a song bird in the tropics can become adapted. This adaptation of the bill has led to some most remarkable changes. From the firm, straight bill of the genus *Oreomystis*—the genus supposed to most closely conform with the ancestral form which may have come from America in very remote time, and the form from which all the other genera of the family are supposed to have evolved—we have widely different types of bills developed." One line of modification ends in a long, slender, and singularly curved bill with a tubular tongue, especially adapted to securing the nectar from long tubular flowers. Another terminates in *Chloridops kona*—a grosbeak-like bird that feeds on the flint-hard seeds of the bastard sandal-wood.

Unfortunately these queer, musky, anomalies are paying the penalty of extreme specialization. Confined, as many of them are, to very special foods, they are unable to meet the radically changed conditions incident to deforestation. Of a total of fifty-six living and extinct passerine birds which have been known to exist in the forests of the inhabited islands of the group, sixteen are now regarded as definitely extinct, while in the last decade other species have become very rare in districts where they were regarded as fairly common. Probably it is only a question of a short time before all but the least specialized will disappear.

One hundred and seventeen half-tone plates illustrate the work. The figures of the birds are mostly from the plates of Wilson and Evans's *Aves Hawaiienses*. Almost all the other plates of the book are from photographs direct from nature, or from prepared specimens. A very full, often annotated, index completes the work and renders easily accessible its extensive store of information. The text and illustrations, it may be added, are clearly and well printed, on good dull-finished paper.

The author is to be congratulated for producing a work which will give pleasure to many, undoubtedly stimulate interest, and long remain a standard reference work on the natural history of Hawaii.—W. K. FISHER.

BIRDS IN THEIR ECONOMIC RELATION TO MAN, by RICHARD C. MCGREGOR (Ornithologist, Bureau of Science, Manila, P. I.). [Philippine Bureau of Science, press bulletin.